

PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q76541

Hyun-doo SHIN, et al.

Appln. No.: 10/621,390

Group Art Unit: 2621

Confirmation No.: 2463

Examiner: Anand Shashikant Rao

Filed: July 18, 2003

For: DIGITAL VIDEO PROCESSING METHOD AND APPARATUS THEREOF

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of \$500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,



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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: July 30, 2007

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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I. REAL PARTY IN INTEREST

The real parties of interest in this appeal is SAMSUNG ELECTRONICS CO., LTD. and THE REGENTS UNIVERSITY OF THE UNIVERSITY OF CALIFORNIA. Assignments of the application were submitted in the U.S. Patent and Trademark Office on January 31, 2001, and recorded on the same date at Reel 011484, Frame 0546 and Reel 011484, Frame 0541, respectively.

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II. RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

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III. STATUS OF CLAIMS

Claims 49-55 are pending in the application and the subject of this appeal. Claims 1-48 have been withdrawn. Claims 49-55 are rejected under 35 U.S.C. § 102(e) as being anticipated by Ratakonda (U.S. Patent No. 5,956,026). Claims 49-55 are set forth in the attached Appendix.

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IV. STATUS OF AMENDMENTS

No claim amendments were requested subsequent to the July 13, 2006 Office Action.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 49 is directed to an apparatus (FIG. 2) for processing video data, wherein a motion intensity level calculation unit (for example, 204) calculates motion intensity levels which indicate a motion intensity of respective inter frames included in an input video data by using motion compensation information of the respective inter frames (Specification at page 5, line 15 to page 6, line 27) and a histogram calculation unit (for example, 206) which calculates a histogram indicating the frequency of the respective motion intensity levels based on the motion intensity levels of respective inter frames (Specification at page 6, line 12 to page 8, line 14).

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Rejection of claims 49-55 under 35 U.S.C. § 102(e) as being anticipated by Ratakonda
(U.S. Patent No. 5,956,026).

VII. ARGUMENT

Appellant respectfully submits that claims 49-55 are not anticipated by or rendered obvious in view of Ratakonda, because the cited reference does not teach or suggest all of the features of the claims.

Independent claim 49 is directed to an apparatus for processing video data. Claim 49 recites:

a motion intensity level calculation unit calculating motion intensity levels indicating a motion intensity of respective inter frames included in an input video data by using motion compensation information of the respective inter frames;
and

a histogram calculation unit calculating a histogram indicating frequency of the respective motion intensity levels based on the motion intensity levels of respective inter frames.

Ratakonda teaches a method of hierarchical digital video summarization (determining the most salient (prominent) frames of a given video sequence that may be used as a representative of the video) (column 2, lines 13-35) and browsing, which includes inputting a digital video signal for a digital video sequence (column 3, lines 21-30) and generating a hierarchical summary based on keyframes of the video sequence (column 3, lines 51-62). The hierarchical summarization consists of multiple levels, where levels vary in terms of detail (number of frames) (column 2, lines 28-35). The coarsest, or most compact level provides the most salient frames and contains the least number of frames (column 2, lines 28-35).

There is no teaching or suggestion in Ratakonda of “a motion intensity level calculation unit calculating motion intensity levels indicating a motion intensity of respective inter frames...by using motion compensation information of the respective inter frames” as required by independent claim 49. The Examiner cites column 10, lines 1-43, column 11, lines 5-20 and column 13, lines 35-60 of Ratakonda as allegedly disclosing this feature of the claim. However, column 10, lines 1-43 of Ratakonda merely discloses a method of clustering similar images by using a “pairwise” Linde-Buzo-Gray (LBG) algorithm, column 11, lines 5-20 is a general discussion of the use of block histograms for shot detection, and column 13, lines 35-60 discusses the utilization of a video browsing method to provide an understanding of the nature of the video sequence which may be employed in video coding systems.

Appellant respectfully submits that there is simply no teaching or suggestion in Ratakonda of “a motion intensity level calculation unit calculating motion intensity levels indicating a motion intensity of respective inter frames...by using motion compensation information of the respective inter frames” as required by independent claim 49.

Ratakonda teaches the use of motion characteristics for video summarization. Motion, such as pan or zoom are detected by computing motion vectors (column 11, lines 28-35). A pre-screening method is used to detect all possible sequences of frames with dominant motion (i.e., motion caused by pan or zoom) (column 11, lines 36-43). A change of intensity in the edge pixels of a video frame or image is used to detect the dominant motion, and thus detect pan and zoom (column 11, line 26 to column 12, line 50).

Nowhere does Ratakonda disclose calculating motion intensity levels indicating a motion intensity of respective inter frames included in an input video data by using motion compensation information of the respective inter frames, and calculating a histogram indicating frequency of the respective motion intensity levels based on the motion intensity levels of respective inter frames. The only mention of any type of motion intensity is related to pre-screening for dominant or global motion, that is, motion caused by pan or zoom in the video (column 11, lines 35-55). There is no disclosure with respect to use of motion compensation information of respective inter frames.

The Examiner asserts that “[t]he action measures of the block histograms read on the “motion intensity levels” of the claims since the action measures are used to find insinuations (sic) of fine motion (less intensive motion characteristics).”¹ Appellant finds this assertion confusing. It is unclear how block histogram action measures would read on motion intensity levels.

The Examiner further asserts that:

[T]he generation of pan and zoom vectors in this pre-screening fashion is done as an alternative to generating the same vectors through the computationally intensive process of motion compensation (Ratakonda: column 13, lines 40-50), but that the vectors are used in motion compensation themselves (Ratakonda: column 17, lines 50-67; column 18, lines 1-32). Also it is noted that the vectors themselves not only represent global motion within a frame, but a global motion from frame to frame.²

¹ Page 3 of the Office Action dated July 13, 2006.

² Page 2 of the Office Action dated July 13, 2006.

Appellant finds the Examiner's position unclear, and it appears that the Examiner is merely broadly asserting subject matter that is not disclosed by the cited reference. Nowhere does Ratakonda disclose "calculating motion intensity levels indicating a motion intensity of respective inter frames...by using motion compensation information of the respective inter frames" (emphasis added).

Secondly, there is no teaching or suggestion in Ratakonda of "a histogram calculation unit calculating a histogram indicating frequency of the respective motion intensity levels based on the motion intensity levels of respective inter frames" as recited in independent claim 1. In fact, Ratakonda appears to be disclosing quite the opposite.

Ratakonda discloses detecting and removing frames that are classified as global motion events (column 4, lines 40-46). These frames are excluded from further processing. Subsequent to the removal of these motion frames, a histogram computation is performed (column 4, lines 40-51). Accordingly, this clearly indicates that a histogram calculation is not performed based on motion intensity levels.

In view of the foregoing, Appellant respectfully submits that the rejection of claims 49-55 should be reversed.

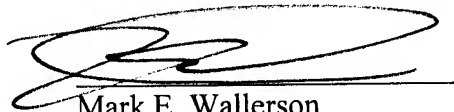
Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

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CLAIMS APPENDIX

CLAIMS 49-55 ON APPEAL:

49. An apparatus for processing video data comprising:

a motion intensity level calculation unit calculating motion intensity levels indicating a motion intensity of respective inter frames included in an input video data by using motion compensation information of the respective inter frames; and

a histogram calculation unit calculating a histogram indicating frequency of the respective motion intensity levels based on the motion intensity levels of respective inter frames.

50. The apparatus of claim 49, wherein histogram comprises a plurality of ratios, respective ratio is a number of inter frames having the respective motion intensity levels to a number of all inter frames included in the input video data.

51. The apparatus of claim 49, wherein the motion intensity level is calculated by using motion compensation values of respective predetermined sized blocks included in an inter frame.

52. The apparatus of claim 49, wherein the motion intensity level is a ratio of a number of blocks having zero motion compensation values to a number of all of predetermined sized blocks included in an inter frame.

53. The apparatus of claim 49, further comprising:

a grouping unit dividing a video stream into at least one video data, selecting the input video data among the at least one video data and output the input video data to the motion intensity level calculation unit.

54. The apparatus of claim 52, further comprising:

a quantization unit quantizing the motion intensity levels and output the quantized motion intensity levels to the histogram calculation unit.

55. The apparatus of claim 53, wherein the grouping unit divides the video stream by using a scene cut detection algorithm.

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EVIDENCE APPENDIX:

There has been no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other similar evidence.

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RELATED PROCEEDINGS APPENDIX

There are no related proceedings.